

# First record of *Colobosaura modesta* (Reinhardt and Lütken, 1862) (Squamata: Gymnophthalmidae) to the Cariri region, state of Ceará, Brazil, with a map of its geographical distribution

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**ABSTRACT:** We provide a new record of *Colobosaura modesta* for the state of Ceará and a distribution map for the species. The record for the municipality of Crato represents a distribution extension of ca. 270 km southeastern from the municipality of Crateús, Ceará, the closest known record.

Gymnophthalmid lizards have small to medium body sized (snout-vent length around 40 to 150 mm) and are distributed from southern Mexico to Argentina, on some continental shelf islands of Central and South America - east of the Andes (Pellegrino *et al.* 2001; Vitt and Caldwell 2009). *Colobosaura modesta* (Figure 1) was described by Reinhardt and Lütken (1862), from the municipality of Morro da Garça, state of Minas Gerais, Brazil.

For a long time this species was recognized as endemic to the Cerrado biome (Vanzolini and Ramos 1977). However, new records were subsequently reported in the Amazon, in eastern state of Pará (Avila-Pires *et al.* 2009; Nogueira *et al.* 2005). Based on available literature, the current distribution of *Colobosaura modesta* includes records for the states of Bahia, Ceará, Distrito Federal, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, São Paulo, and Tocantins (Figure 2) (Nogueira *et al.* 2005; Recoder and Nogueira 2007; Recoder *et al.* 2011; Benozzati and Rodrigues 2003; Silva-Junior *et al.* 2009; Vanzolini and Ramos, 1977; Avila-Pires 1995; Uetanabaro *et al.* 2007; Valdujo *et al.* 2009; Vaz-Silva *et al.* 2007; Cintra *et al.* 2009; Araujo and Almeida-Santos 2011; Rodrigues *et al.* 2005; Pavan and Dixon 2004; Mesquita *et al.* 2005; Hernández-Ruz *et al.* 2008; Costa *et al.* 2010; Curcio *et al.* 2011; Santo *et al.* 2011; Couto-Ferreira *et al.* 2011).

Only Recently, *Colobosaura modesta* was recorded in the state of Ceará, in Reserva Particular do Patrimônio Natural (RPPN) Serra das Almas, which is located in the municipality of Crateús and subsequently in the municipalities of São Luís and Ubajara, where the latter is located in the enclave of Atlantic Forest in the northern part of the Planalto de Ibiapaba (Borges-Norjosa and

Caramaschi, 2003; Borges-Norjosa and Cascon 2005). Herein, we report a new distribution record of *C. modesta* to the Cariri region, in the state of Ceará.

From 1-5 August 2011, during a herpetological survey from the Program for Biodiversity Research - PPBio/CNPq, we collected two specimens of *Colobosaura modesta* (Figure 1) in Chapada do Araripe (National Forest of the Araripe), municipality of Crato (07°25.444'S, 39°17.659' W; 768 m asl). Our new finding of *C. modesta* extend the distribution of this species ca. 270 km southeastern from the municipality of Crateús in the state of Ceará. Specimens are deposited in the Coleção Herpetológica do departamento de Botânica, Ecologia e Zoologia da UFRN (CHBEZ 3758, 3759, Verified by: M. T. Rodrigues. Collection permit numbers: 27143-1. Authentication code: 91465384, Issuing agency: ICMbio, SISBIO, 2011).

The Chapada do Araripe Mountain Range occupies parts of three states (Ceará, Piauí, and Pernambuco) in northeastern Brazil. In Ceará the Chapada is located in the southern meridian region (07°25' S, 39°17' W). This region is dominated by formations of the Cretaceous age (Araripe group) (Campelo *et al.* 2000), having altitudes varying from 850-900 m. A number of different vegetation physiognomies are found there, including: Sub-perennial Tropical Pluvio-Nebular Forest (Humid Forest), Sub-deciduous Tropical Pluvial Forest (Dry Forest), Sub-deciduous Tropical Xeromorphic Forest ("Cerradão"), Cerrado and Carrasco (scrub) (Campelo *et al.* 2000). *Colobosaura modesta* was collected in the sandy soil of the forested area; the two specimens were collected in leaf litter, mostly composed of decaying leaves.



FIGURE 1. *Colobosaura modesta* (ca. 35 mm SVL, CHBEZ 3758) from the Chapada do Araripe, municipality of Crato, state of Ceará, Brazil. Photo by: Jaqueiuto Jorge.

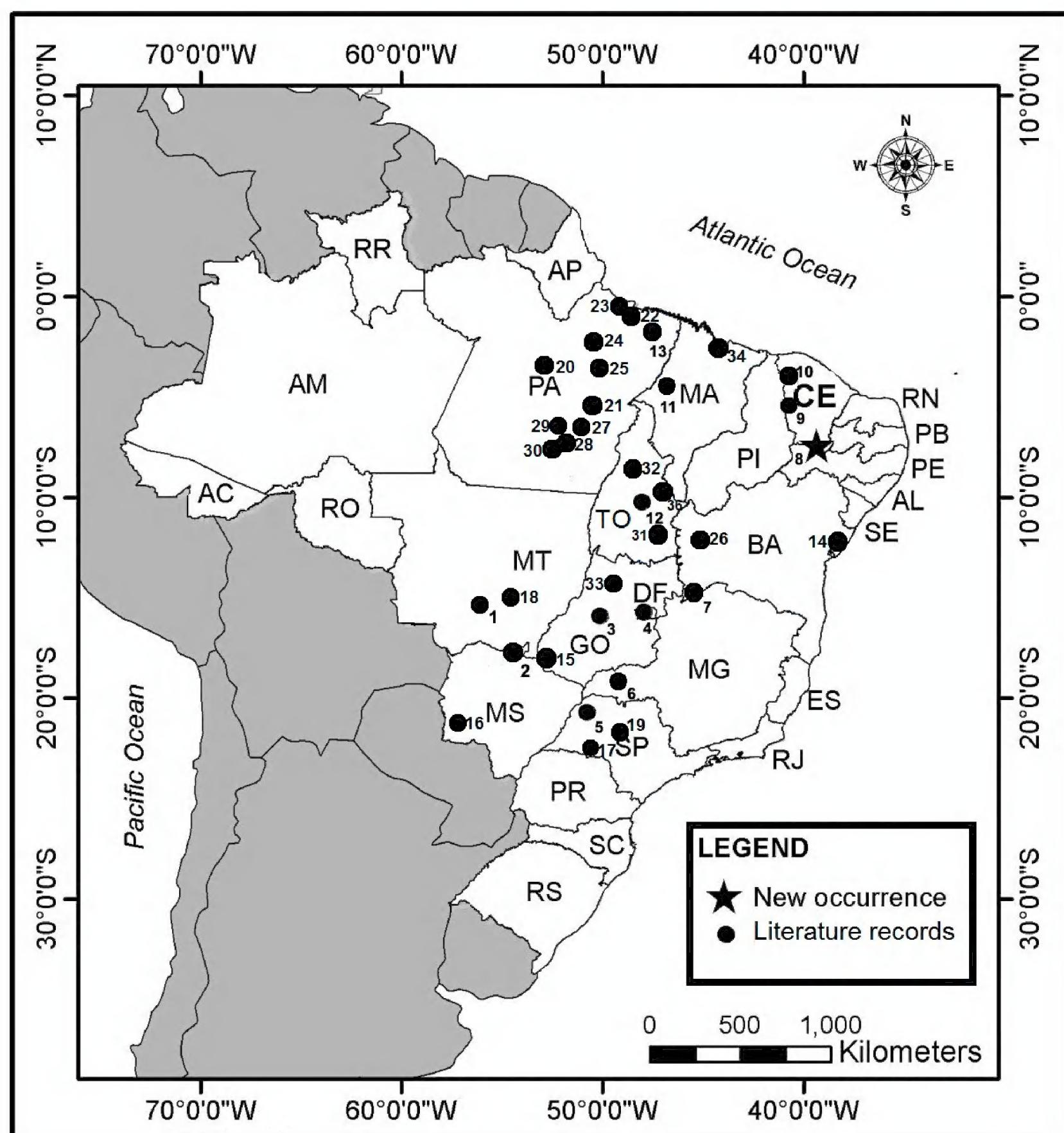


FIGURE 2. Geographic distribution of *Colobosaura modesta*. BA = Bahia; CE = Ceará; DF = Distrito Federal; MA = Maranhão; MT = Mato Grosso; MS = Mato Grosso do Sul; MG = Minas Gerais; PA = Pará; SP = São Paulo; TO = Tocantins.

1. Ponte de Pedra (Vanzolini and Ramos 1977);
2. Barra do Bugres (Avila-Pires 1995);
3. Anápolis (Avila-Pires 1995);
4. Distrito Federal (Recoder and Nogueira 2007; Recoder et al. 2011);
5. Nova Europa (Vanzolini and Ramos 1977);
6. Morro da Garça (Reinhardt and Lütken 1862);
7. Parque Nacional Grande Sertão Veredas (Nogueira et al. 2005; Recoder and Nogueira 2007; Recoder et al. 2011);
8. Crato (Chapada do Araripe; new record);
9. Crateús;
10. Ubajara (Borges-Norjosa and Caramaschi 2003; Borges-Norjosa and Cascon 2005);
11. Vila Andiroba (Avila-Pires 1995);
12. Palmas (Recorder et al. 2011; Pavan and Dixon 2004);
13. Bragança-Viseu basin (Avila-Pires 1995; Avila-Pires et al. 2009);
14. Mata de São João (Couto-Ferreira et al. 2011);
15. Parque Nacional das Emas (Valdujo et al. 2009);
16. Serra da Bodoquena (Uetanabaro et al. 2007; Vanzolini and Ramos 1977);
17. Assis (Araujo and Almeida-Santos 2011);
18. Nobres (Santo et al. 2011);
19. Santos Dumont (Vanzolini and Ramos 1977);
20. Carajás;
21. Ilha Tocantins;
22. Augusto Côrrea;
23. Bragança;
24. Capanema;
25. Igarapé-Açu (Avila-Pires 1995);
26. Barreiras (Avila-Pires 1995);
27. Orilândia do Norte;
28. Tucumã;
29. São Félix do Xingu;
30. Parauapebas (Hernández-Ruz et al. 2008);
31. Parque Estadual do Jalapão (Mesquita et al. 2005);
32. Guarai (Curcio et al. 2011);
33. Niquelândia (Avila-Pires 1995);
34. São José do Ribamar (Costa et al. 2010);
36. Estação Ecológica Serra Geral do Tocantins (EESGT) (Recoder et al. 2011).

**ACKNOWLEDGMENTS:** We thank Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the research scholarship granted to Jaqueiuto S. Jorge (CNPq/PIBIC grant nr.107757/2010-9) and Eliza M. X. Freire (Research Grant nr.304077/2008-9), and the Center for Conservation and Management of Caatinga Fauna (CEMAFAUNA-CAATINGA) for logistics support.

#### LITERATURE CITED

Araujo, C.O. and S.M. Almeida-Santos. 2011. Herpetofauna de um remanescente de cerrado no estado de São Paulo, sudeste do Brasil. *Biota Neotropica* 11(3): 47-62.

Avila-Pires, T.C.S. 1995. Lizards of Brazilian Amazonia (Reptilia: Squamata). *Zoologische Verhandelingen* 299: 1-706.

Avila-Pires, T.C.S., L.J. Vitt, S.S. Sartorius and P.A. Zani. 2009. Squamata (Reptilia) from four sites in southern Amazonia, with a biogeographic analysis of Amazonian lizards. *Boletim do Museu Paraense Emílio Goeldi, Ciências Naturais* 4(2): 99-118.

Benozzati, M.L. and M.T.U. Rodrigues. 2003. Mitochondrial Restriction-Site Characterization of a Brazilian Group of Eyelid-Less Gymnophthalmid Lizards. *Journal of Herpetology* 37(1): 161-168.

Borges-Nojosa, D.M. and U. Caramaschi. 2003. Composição e análise comparativa da diversidade e das afinidades biogeográficas dos lagartos e anfíbiosbenídeos (Squamata) dos Brejos Nordestinos; p. 489-540 In I.R. Leal, M. Tabarelli, and J.M.C. Silva (org.). *Ecologia e conservação da Caatinga*. Recife: Editora Universitária da UFPE.

Borges-Nojosa, D.M. and P. Gascon. 2005. Herpetofauna da área da reserva da Serra das Almas, Ceará; p. 243-258 In F.S. Araújo, M.J.N. Rodal and M.R.V. Barbosa (ed.). *Análise das Variações da Biodiversidade do Bioma Caatinga: suporte a estratégias regionais de conservação*. Brasília: Ministério do Meio Ambiente (MMA).

Campello, F.C.B., G. Leal-Junior, J.A. Silva and R.C.B. Campello. 2000. *Avaliação dos recursos florestais de área de proteção Ambiental Chapada do Araripe*. Projeto MMA\FAO UTF\BRA\047, MMA-Ministério do Meio Ambiente, Secretaria da Biodiversidade e Floresta, Crato: Diretoria do Programa Nacional de Florestas. 49 p.

Cintra, C.E.D., H.L.R. Silva and N.J. Silva Jr. 2009. Herpetofauna, Santa Edwiges I e II hydroelectric power plants, state of Goiás, Brazil. *Check List* 5(3): 570-576.

Costa, J.C.L., P.R. Manzani, M.P.L. Brito and A.O. Maciel. 2010. *Tropidurus hispidus* (Calango). Prey. *Herpetological Review* 41(1): 87.

Couto-Ferreira, D. M.S., M.L.T. Tinôco, H.C. Oliveira, C.P. Browne-Ribeiro, R.M.S. Fazolato, G.S. Barreto and M.A. Dias. 2011. Restinga lizards (Reptilia: Squamata) at the Imbassáí Preserve on the northern coast of Bahia, Brazil. *Journal of Threatened Taxa* 3(8): 1990-2000.

Curcio, F.F., P.M.S. Nunes, M.B. Harvey and M.T. Rodrigues. 2011. Redescription of *Apostolepis longicaudata* (Serpentes: Xenodontinae) with comments on its hemipenial morphology and natural history. *Herpetologica* 67:318-331.

Hernandez-Ruz, J.E., B.E. Mascaranhas and R. Miranda. 2008. Caracterização preliminar da herpetofauna das serras Onça e Puma, sudeste do estado do Pará, Brasil. *Boletim do Laboratório de Hidrobiologia* 21:25-30.

Mesquita, D.O., G.R. Colli, F.G.R. França, and L.J. Vitt. 2006: Ecology of a cerrado lizard assemblage in the Jalapão region of Brazil. *Copeia* 2006: 460-471.

Nogueira, C., P.H. Valdujo and F.G.R. França. 2005. Habitat variation and lizard diversity in a Cerrado area of Central Brazil. *Studies on Neotropical Fauna and Environment* 40: 105-112.

Pavan, D., and M. Dixo. 2004. A Herpetofauna da área de influência do reservatório da Usina Hidrelétrica Luís Eduardo Magalhães, Palmas, TO. *Humanitas* 4/6: 13-30.

Pellegrino, K.C.M., M.T. Rodrigues, Y. Yonenaga-Yassuda and J.W. Sites Jr. 2001. A molecular perspective on the evolution of microteiid lizards (Squamata, Gymnophthalmidae), and a new classification for the family. *Biological Journal of the Linnean Society* 74(3): 315-338.

Rodrigues, M.T., E. M.X. Freire, K.C.M. Pellegrino, and J.W. Sites Jr. 2005. Phylogenetic relationships of a new genus and species of microteiid lizard from the Atlantic forest of north-eastern Brazil (Squamata, Gymnophthalmidae). *Zoological Journal Linnean Society* 144: 543-557.

Recoder, R. and C. Nogueira. 2007. Composição e diversidade de répteis Squamata na região sul do Parque Nacional Grande Sertão Veredas, Brasil Central. *Biota Neotropica* 7(3): 267-278.

Recoder, R.S., M. Teixeira Junior, A. Camacho, P.M.S Nunes, T. Mott, P.H. Valdujo, J.M. Ghellere, C. Nogueira and M. T. Rodrigues. 2011. Répteis da Estação Ecológica Serra Geral do Tocantins, Brasil Central. *Biota Neotropica* 11(1): 263-282.

Reinhardt, J. and C. Lütken. 1862. Bidrag til Kundskab om Brasiliens Padder og Krybdyr. *Videnskabelige Meddelelser fra den Naturhistoriske Forening i Kjøbenhavn* 1861(10-15): 143-242.

Santo, M.M., R.W. Ávila and R.A. Kawshita-Ribeiro. 2011. Checklist of the amphibians and reptiles in Nobres municipality, Mato Grosso state, central Brazil. *Herpetology Notes* 4: 455-461.

Uetanabaro, M., F.L. Souza, P.L. Filho, A.F. Beda and R.A. Brandão. 2007. Anfíbios e répteis do Parque Nacional da Serra da Bodoquena, Mato Grosso do Sul, Brasil. *Biota Neotropica* 7(3): 279-289.

Silva Jr, N.J., C.E.D. Cintra, H.L.R. Silva, M.C. Costa, C.A. Souza, A.A. Pachêco Jr and F.A. Gonçalves. 2009. Herpetofauna, Ponte de Pedra hydroelectric power plant, states of Mato Grosso and Mato Grosso do Sul, Brazil. *Check List* 5(3): 518-525.

Valdujo, P.H. C. Nogueira, L. Baumgarten, F.H.G. Rodrigues, R.A. Brandão, A. Eterovic, M.B. Ramos-Neto and O.A.V. Marques. 2009. Squamate Reptiles from Parque Nacional das Emas and surroundings, Cerrado of Central Brazil. *Check List* 5(3): 405-417.

Vanzolini, P.E. and A.M.M. Ramos. 1977. A new species of *Colobodactylus*, with notes on the distribution of a group stranded microteiid lizard (Sauria, Teiidae). *Papéis Avulsos de Zoologia, São Paulo*, 31(3): 19-47.

Vaz-Silva, W., A.G. Guedes, P.L. Azevedo-Silva, F.F. Gontijo, R.S. Barbosa, G.R. Aloísio and F.C.G. Almeida. 2007. Herpetofauna, Espora Hydroelectric Power Plant, state of Goiás, Brazil. *Check List* 3(4): 338-345.

Vitt, L.J. and J.P. Caldwell. 2009. *Herpetology: an introductory biology of amphibians and reptiles*. San Diego: Academic Press. 697 p.

RECEIVED: March 2012

ACCEPTED: August 2012

PUBLISHED ONLINE: September 2012

EDITORIAL RESPONSIBILITY: Pedro L. V. Peloso